

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1.-20. (canceled)

21. (new): A method for treating a drilled well, the method comprising the steps of:  
positioning distributed temperature sensors on a fiber along an interval within a well,  
wherein the distributed temperature sensors provide substantially continuous  
temperature monitoring along the interval;  
obtaining a baseline temperature profile across the interval;  
monitoring substantially continuously the temperature along the interval;  
calculating a differential temperature profile across the interval relative to the baseline  
temperature profile;  
injecting a fluid into the well and into one or more zones surrounding the interval;  
shutting-in the well until the temperature in the well substantially stabilizes;  
monitoring the shut-in temperature along the interval during the shut-in period;  
determining the shut-in temperature deviation relative to the baseline temperature profile  
across the interval; and  
determining the one or more formation zones in which the injected fluid flowed.

22. (new): The method of claim 21, further comprising the step of determining the shut-in temperature deviation relative to the differential temperature profile measured prior to the shut-in.
23. (new): The method of claim 21, further comprising the step of determining the volume of the fluid injected into the one or more zones.
24. (new): The method of claim 21, wherein the fiber has a bottom end including a temperature sensor for substantially continuous monitoring of bottom-hole temperature.
25. (new): The method of claim 21, wherein the fiber has a bottom end, the bottom end including a temperature sensor for substantially continuous monitoring of bottom-hole temperature and a pressure sensor for measuring for substantially continuous monitoring of bottom-hole pressure.
26. (new): The method of claim 21, wherein the fiber has a bottom end including a pressure sensor for substantially continuous monitoring of bottom-hole pressure.
27. (new): The method of claim 21, further including the step of injecting a subsequent fluid pursuant to the step of determining the zone of injection of the prior injected fluid.

28. (new): The method of claim 21, further including the steps of:

injecting a diverter into the well pursuant to the step of determining the zone of injection  
of the prior injected fluid; and

injecting a subsequent fluid pursuant to the step of determining the zone of injection of  
the prior injected fluid.

29. (new): The method of claim 21, wherein the fluid is a matrix treatment agent.

30. (new): The method of claim 21, wherein the fluid is a matrix acidizing agent.

31. (new): The method of claim 21, wherein the fluid is a fracturing agent.

32. (new): The method of claim 21, wherein the fluid is an acid fracturing agent.

33. (new): The method of claim 21, wherein the fluid is a gravel packing agent.

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34. (new): A method for treating a drilled well, the method comprising the steps of:

positioning distributed temperature sensors on a fiber along an interval within a well surrounded by one or more formation zones, wherein the distributed temperature sensors provide substantially continuous temperature monitoring along the interval;

obtaining a baseline temperature profile across the interval;

monitoring substantially continuously the temperature along the interval;

calculating a differential temperature profile across the interval relative to the baseline temperature profile;

injecting a fluid non-reactive with the one or more formation zones into the well and the one or more formation zones;

calculating the injectivity of the one or more formation zones based on temperature profile along the interval during the step of injecting the non-reactive fluid;

injecting a fluid reactive to the one or more formation zones into the well and into one or more formation zones surrounding the interval pursuant to the calculating the injectivity step;

shutting-in the well until the temperature in the well substantially stabilizes;

monitoring the shut-in temperature along the interval during the shut-in period;

determining the shut-in temperature deviation relative to the baseline temperature profile across the interval; and

determining the one or more formation zones in which the injected fluid flowed.

35. (new): The method of claim 34, further comprising the step of determining the shut-in temperature deviation relative to the differential temperature profile measured prior to the shut-in.

36. (new): The method of claim 34, further including the step of injecting a diverter into the well pursuant to the step of determining the injectivity of the one or more formation zones relative to the injecting of the non-reactive fluid.

37. (new): The method of claim 34, further comprising the step of determining the volume of the reactive fluid injected into the one or more zones.

38. (new): The method of claim 34, further including the step of injecting a subsequent fluid pursuant to the step of determining the zone of injection of the prior injected fluid.

39. (new): The method of claim 34, further including the steps of:  
injecting a diverter into the well pursuant to the step of determining the zone of injection of the prior injected fluid; and  
injecting a subsequent fluid pursuant to the step of determining the zone of injection of the prior injected fluid.

40. (new): The method of claim 34, further including the steps of:

injecting a diverter into the well pursuant to the step of determining the one or more

formation zones of injection of the prior injected reactive fluid; and

injecting a subsequent fluid pursuant to the step of determining the zone of injection of

the prior injected reactive fluid.